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PHASE 3-D TOP TO BOTTOM REVIEW

HR AMSAT NEWS SERVICE BULLETIN 302.01 FROM AMSAT HQ
SILVER SPRING,MD OCTOBER 29,1994
TO ALL RADIO AMATEURS BT
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PHASE 3-D INTERNATIONAL SATELLITE TEAM MEETS IN GERMANY TO REVIEWS ONGOING PROGRESS

Members of the Phase 3-D International Satellite Design Team met in Marburg, Germany October 12th to 23rd, 1994. Dr. Karl Meinzer, DJ4ZC, AMSAT-DL President, the Phase 3-D Project Team Leader, and Werner Haas, DJ5KQ, AMSAT-DL Vice-President hosted the series of detailed meetings which included a "top-to-bottom" review of progress on all the satellite's systems and sub-systems. During the discussions, team members also bench-tested a number of flight hardware electronic items, and set the final operating frequencies for the spacecraft's transmitters and receivers.

"It was a marathon session," said Dick Jansson, WD4FAB, AMSAT North America's Vice President for Engineering, upon his return to the United States on October 24th from the Marburg meetings. Dick went on to note that, as a result of the session, team members are now very confident that all key elements of the project are on schedule and that the spacecraft's integration in Florida can continue without interruption.

Several critical schedule milestones were achieved during the meetings. Among them were completion of all the formal documentation accompanying AMSAT's "Application to Use Ariane" (DUA) along with the necessary Safety Submission. Together, these documents constitute the formal, written request to The European Space Agency (ESA) regarding how AMSAT proposes to safely mount Phase 3-D on the Ariane 5. It took several members a number of days to complete this highly complex task. In addition, an ESA representative visited with the team in Marburg during the session to discuss details of Phase 3-D's interface to the Ariane 5.

Another series of meetings involved Dr. Andras ("Bandi") Gschwindt, HA5WH, and two of his colleagues, all from the University of Budapest. These meetings finalized the P3-D power system's architecture and the design of the Battery Charge Regulator (BCR). Bandi has been involved with the BCRs on all previous Phase 3 spacecraft.

Also present at the session was Freddy de Guchteneire, ON6UG, Phase 3-D's Frequency Coordinator. Under Freddy's expert guidance, the team finalized all of Phase 3-D's frequency passbands. This all-important step cast the frequencies in "quartz" for the spacecraft's RF units. Freddy will make a separate public announcement in the near future listing Phase 3-D's final frequency passbands in more detail. In addition, Freddy, Dr. Karl Meinzer and Werner Haas, DJ5KQ, spent a considerable amount of time bench-testing the nearly completed flight models of the V and U band receivers.

Karl also met with Michael Scharfe, DH7UX, and Ralf Zimmermann, DL7FDT, both of the University of Darmstadt, regarding the details of the spacecraft's reaction wheel stabilization system. During these meetings, the overall design approach for the reaction wheel system was finalized and Michael and Ralf are now in the process of turning Karl's fundamental

mechanical, magnetic and mathematical design concepts into actual flight hardware for the spacecraft. Another key element of this critical process involved a series of meetings among Karl, Dick Jansson and Wilfred Gladish. During these meetings, the team modified and finalized both the location and design for the reaction wheel mounting hardware.

On October 19th, Peter Guelzow, DB2OS, joined the session and directed several key discussions regarding the status and availability of the remaining spacecraft modules. After extensive discussions with the RUDAK group in Munich, the team concluded that the RUDAK-E experiment would not be available and therefore will not fly. However, good construction progress on the RUDAK-U, the user-oriented digital communications system, as well as its special relationship to other onboard high-speed data experiments, such as the SCOPE cameras and GPS experiment, were noted. Peter and Werner also held some very detailed side meetings that finalized the specific architecture for the RUDAK-U.

Matjaz Vidmar, YT3MV arrived on Friday 21st October to discuss various design aspects of the receivers he is building for P3-D. Other discussions noted favorable progress now being made on Phase 3-D's IF matrix as well as the LEILA system. In a related development, Peter agreed to oversee construction of all of Phase 3-D's CheckOut Test Equipment (COTE). This equipment will be a critical hardware and software suite providing remote command and control of the spacecraft during integration, checkout and launch.

Finally, the team conducted a detailed "top-to-bottom" schedule review of the project. All agreed that the schedule timing is "tight". However, in closing, Dr. Meinzer expressed his satisfaction with the progress to date, and expressed confidence that the time allotted for all remaining critical activities in the project schedule appear both realistic and achievable.

ANS thanks to Dick Jansson, WD4FAB, and Peter Guelzow, DB2OS, who contributed the information that went into this News Release}

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HR AMSAT NEWS SERVICE BULLETIN 302.02 FROM AMSAT HQ
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Due to heavy workload and the desire to turn to different interests, Alberto I2KBD, has appointed Gianluigi IK2VOO as main command station and Stefano IK2OYD as backup. After some training, on 20 October IK2VOO succesfully turned on ITAMSAT and exercised some onboard functions. Both trasmitters (435.867 MHz and 435.822 MHz) were commanded on and some telemetry was collected. The spacecraft was in good shape, the battery well charged and the main parameters in nominal status. After a week of tests, with the main purpose of better training the new command stations in the commanding procedures, IO-26 was reset in preparation to the main software reload.

ANS thanks Alberto Zagni I2KBD and the ITAMSAT Command team for this information.

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WO-18 PROBLEM

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WEBERSAT WO-18 PROBLEM NOTED

A problem seems to have developed on WO-18. It has become difficult to copy packets from the satellite. We don't have a handle on the cause yet said Chris Williams WA3PSD.We are in the process of getting some test equipment into the ground station to get a look at the signal.
To the ear, it sounds essentially as it always has. It is not currently impossible to copy, but data quantities received during a pass are reduced about 30% -- and that's only if one "tweaks" the IF shift on one's receiver. With no special tuning efforts, results seem worse. Frankly he added,it is not clear special tuning procedures are helping. It appears to be an intermittent problem. Telemetry does not indicate anything wrong.

Chris added that there is some control of the RC transmitter's phasing available and they will explore it as a solution. We also may switch back to the straight BPSK transmitter on occasion to determine if that is a superior alternative,he concluded.

Chris asks that anyone who has information or suggestions relative to WO-18 to please drop him a note via Internet at cwilliams@cc.weber.edu.

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SB SAT @ AMSAT $ANS-302.04
WEEKLY OSCAR STATUS REPORTS

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Weekly OSCAR Status Reports: 29-OCT-94

AO-13: Current Transponder Operating Schedule:

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   N QST *** AO-13 TRANSPONDER SCHEDULE ***  1994 Sep 12 - Dec 19
   Mode-B  : MA  30 to MA 150 |<- OFF Oct 22 - Nov 07 for eclipses
   Mode-B  : MA 150 to MA 190 |       max duration 2h 12m
   Mode-BS : MA 190 to MA 218 |
   Mode-S  : MA 218 to MA 220 |<- S beacon only
   Mode-S  : MA 220 to MA 230 |<- S transponder; B trsp. is OFF
   Mode-B  : MA 230 to MA  30 |        Blon/Blat 230/0
   Omnis   : MA 250 to MA 140 |  Move to attitude 180/0, Dec 19
  The battery charge state is of paramount importance during the eclipse
  seasons.  As always the command team may have to have to make temporary
  changes to the published schedule.  In that case we will try to minimize
  the inconvenience, setting Mode-B OFF from MA 230-256 in the first
  instance.
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[G3RUH/DB2OS/VK5AGR]

Despite reports of power system problems, leading to orientation difficulties, attributed to Space News, it has been reported that MIR: German Astronaut Ulf Merbold, DP3MIR, has been active from the Russian space station MIR over Europe during the recent evenings. Unfortunately the power supply problem aboard MIR, has apparently prevented Ulf

from using the Digital Voice Memory and obviously reducing his activity to only a few passes a day over Europe. DP3MIR is scheduled to stay aboard MIR until about 3-NOV-94. It is hoped that he will be active over other continents besides Europe. The QSL info is: DP3MIR via the usual German (DARC) QSL Bureau. [DF5DP]

WO-18 Operating but apparently suffering some kind of problem. See accompnying bulletin.

FO-20: JJ1WTK reports that on 19-OCT-94 that all software needed to start the BBS was completed and the BBS is now in full operation. JJ1WTK notes also that is has been 4 years since FO-20 was placed into orbit. The batteries on FO-20 are performing far better than those aboard FO-12 at this same point in FO-20's life. However, the FO-20 batteries have degraded slightly and this has caused a change in the battery voltage power control unit telemetry item (abbreviated by PCU) to change to level 3. [Kazu Sakamoto (JJ1WTK) qga02014@niftyserve.or.jp]

AO-21: The "total-shutdown" of the amateur radio payload AO-21 (including the CW-beacon on 145.818MHz) on the main spacecraft INFORMATOR 1 occured during the following time period: 94-10-12 15:00 UTC & 94-10-13 11:42 UTC. If anyone was watching the shutdown when it happened or can narrow this time interval to the very instant it happened, this will be very helpful data to understanding what is going on with INFORMATOR 1. The AO-21 Command Team is looking forward to hearing from you. Please send your comments via PACKET to Robert: DD4YR @DB0AAB.#BAY.DEU.EU or via INTERNET to Peter at db2os@amsat.org. [DB2OS/DG2CV/DD4YR]

AO-27: When AO-27 is over North America, it has its amateur radio payload activated in digital mode almost 100% of the time. [N4USI]

YOUR ATTENTION PLEASE
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During the month of NOVEMBER you have a NEW AMSAT NEWS SERVICE editor, W3QNS. PLEASE send all information to w3qns@amsat.org on the internet or to 76446,1615 on COMPUSERVE. I will be grateful for all help!
I also wish to thank BILL T. W3XO for all the help in getting this together.

The AMSAT NEWS Service (ANS) is looking for volunteers to contribute weekly OSCAR status reports. If you have a favorite OSCAR which you work on a regular basis and would like to contribute to this bulletin, please send your observations to W3QNS at my CompuServe address or to w3qns@amsat.org Also, if you find that the current set of orbital elements are not generating the correct AOS/LOS times at your QTH, PLEASE INCLUDE THAT INFORMATION AS WELL. The information you provide will be of value to all OSCAR enthusiasts.

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